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Document Management System: Office Process Control for the Municipal Government in Taiwan

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ABSTRACT

Tedious paper work and time-consuming processes of administrative routines have been the main bottleneck for improving quality of work and productivity of organizational members in current bureaucratic organizations. With the advancement of computer and communication technologies and the demands from the rapidly changing social and business environment, automating administrative processes have been very attractive to the government at various levels. The Control Data Taiwan has taken the initiative to develop the Document Management System (DMS) that meets the needs of contemporary governments. The DMS has been installed at a number of municiple governments and some provincial and federal departments in Taiwan.

DOCUMENT MANAGEMENT SYSTEM

The Document Management System (DMS) consists of six modules: 1) incoming documents management; 2) documents routing management; 3) documents congregating management; 4) outgoing documents management; 5) documents audit management; and 6) maintenance management. In addition, it also provides the system administer with functions such as user identification and user authentication.

Incoming Documents Management

The official memos, announcements, and documents that an organization generates within as well as receives from outside each day could be numerous. It is normal for an organization to require all such documents be directed to the main gateway that performs functions such as recordation and confirmation, screening, prioritization, and distribution.

The recordation function automatically issues a unique identifier for each document the organization received and time-stamps it. Simultaneously, it may also generate a receipt with a time-stamp should the sender request for the confirmation of receiving his document. For each incoming document, the clerk inputs information about the sender, context of the document, and the security level. The incoming document is screened and distributed to some specific department or a general operation unit.

The module redistributes those documents that are returned to the main gateway because of an earlier inappropriate distribution. General inquiries on all incoming documents and generation of a list of such documents are also built-in functions.

Documents Routing Management

The document will be recorded again and treated as a case once it arrives at the corresponding department. It will be merged to an existing case if it is related to that case; otherwise, a new case will be formed. A priority is issued according to the deadline, context, and the security level of the document. The time required to process a document is defined for each priority. It may be an inter-departmental case which has traditionally been very difficult to trace.

Assigning a case to an agent or agents is done according to the size, urgency, security, and complexity of the document and corresponding office procedures applied to that document. The document is then distributed according to the distribution list. A coordinator is assigned for a case if there are more than one agent working on that case. The coordinator then initiates, executes, and monitors various office procedures to process the case.

Once an agent completes a case or a portion of a case, the document will be forwarded to the archives or the next agent on the distribution list. listings of over-due and forwarding cases are generated for audit purposes as needed.

Documents Congregating Management

The subsystem is activated when an agent completes his share of work of a case. It will time-stamp the case and offset the flag which indicates the status of whether the case is completed. It also distributes the active case to the next agent on the distribution list. Status inquiry about a case or a document is also available.

Outgoing Documents Management

The outgoing documents are released either at the organizational or departmental level depending on its context. Information about an outgoing document is recorded including the name and address of the recipient, the name and theme of the document, the issuing date, and the issuing unit.

For each outgoing document, the system will automatically issue a reminder to the issuing unit requesting for the original copy for the archives. It also generates a list of corresponding outgone documents for each unit.

Documents Audit Management

The audit function will be triggered if there is a case overdued for a certain number of days or past the deadline. It also provides some statistics about the individual and aggregate performance of agents based on the processing speed of cases, the number of cases processed, and the processed cases.

Detainee Training Funds Accounting Management

This module deals with processes of budget estimation, budget proposals and ratification, and their execution. It also includes bookkeeping, spending controls, and auditing processes. Various of daily and monthly reports are also prepared and automatically generated for decision makers.

Detainee Safety and Security Management

The detainee safety and security program is designed to maintain records of status and history of detainee behavior, monitor their personal communication and visitation, allocate their jail cells, schedule and assign the security guards, and control guns, ammunition, and controlled substance.

Detainee Psychological Profile Management

A periodical psychological test is required for each individual detainee. The tests data and data gathered either directly or indirectly form the basis upon which a detainee is evaluated, assigned for training programs, treated for health, and kept in custody.

This operation is initiated periodically throughout the whole period when a detainee serves his time in the penitentiary. A final check will have to be confirmed before any detainee could be discharged and released.

Files Management

In order to support effective decision making, data about detention and penitentiary operations are compiled and consolidated and various reports are periodically designed and generated or on an at hoc basis. Data audit and files maintenance are very important functions to maintain the integrity of DEMS data bases.

SYSTEM AND NETWORK ARCHITECTURES

Hardware platform of the DEtainee Management System (DEMS) primarily uses CDC 4000 serious with at least 32 MB primary memory and 1 GB disk space. Software platform is built in an environment that includes EP/IX 1.4.2 O/S or its higher version, ORACLE V6.0 data base management system, and some development tools (such as SQL* FORMS, SQL* REPORT, PRO* C, and PRO* COBOL). A sample of system architecture is shown on the figure 1.

There are three mainframes installed at the computer center of the Ministry of Justice in Taipei. These include a DEC VAX II, CDC 4360, and IBM 4381. Except for the IBM 4381, both DEC and CDC mainframes use TCP/IP and directly communicate with penitentiaries with a DEMS through a private X.25 network. The network architecture is shown on the figure 2.

DISCUSSIONS

For the administration of any penitentiary, a detainee's data such as background, registration, discharge, parole suggestions, training assignments, and property, can be integrated and managed by utilizing the DEtainee Management System. Information about any detainee or penitentiary can also be exchanged and shared by interconnecting all penitentiaries, various attorney general offices, and the Ministry of Justice through a communication network. The quality of work and productivity of the law enforcement are, therefore, greatly improved. Comparison of actual work hours between manual and computerized operations are shown in table 1 and charts 1 through 4.

It took only two years to complete the DEMS. The success of the project relied on the high degree of coordination and cooperation among the system team and users at various levels and departments of the penitentiary, attorney general offices, and the Ministry of Justice. Three phases were designed to implement the system; these are: 1) promotion; 2) training; and 3) on-site assistance.

Different training programs, however, can be designed in such a way to match detainee's educational backgrounds and interests in order to produce a better group of ex-detainee. At the second best, the administration shall be able to match the existing programs and detainee's backgrounds and interests to produce better results of learning and behavior.

Table 1: Comparison of Actual hours used between Manual and computerized operations

Unit: hours

Operations	Manual operations	Computerized operations		
		Data Entry	Printing	Subtotal
Personal Profile management	45.00	6.60	7.70	14.30
Psychological Profile management	12.00	2.00	0.50	2.50
Property management	19.00	6.45	1.99	8.44
Training & operation management	12.44	1.13	0.77	1.90
Files management	6.40	3.00	0.20	3.20
Total	95.00	19.00	11.00	30.00

Chart 1:Comparison of actual hours used between manual and computerized operations

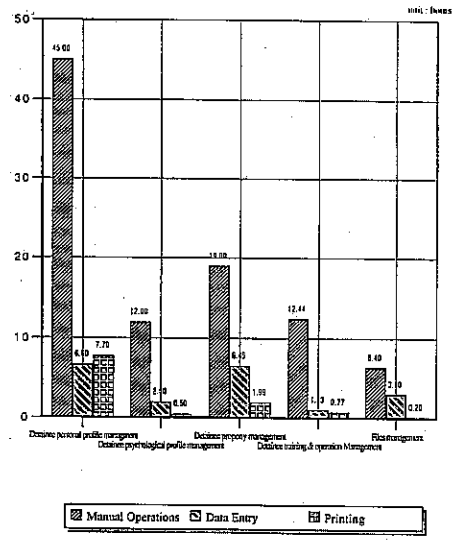


Chart 3:Comparison of Actual hours used between manual and detainee training & operation management

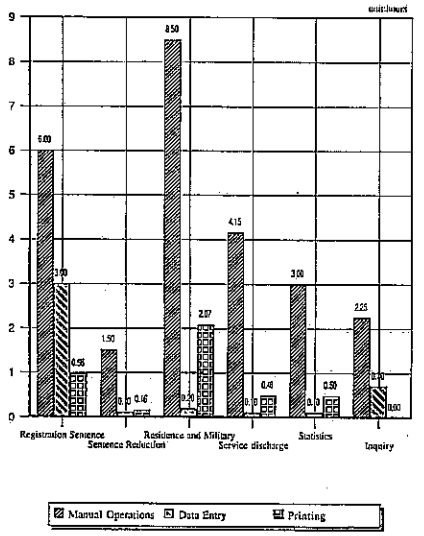


Chart 2:Comparison of Actual hours used between manual and detainee property management

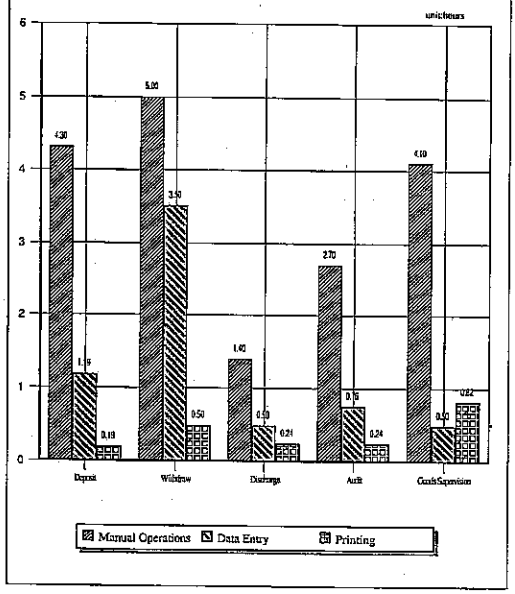
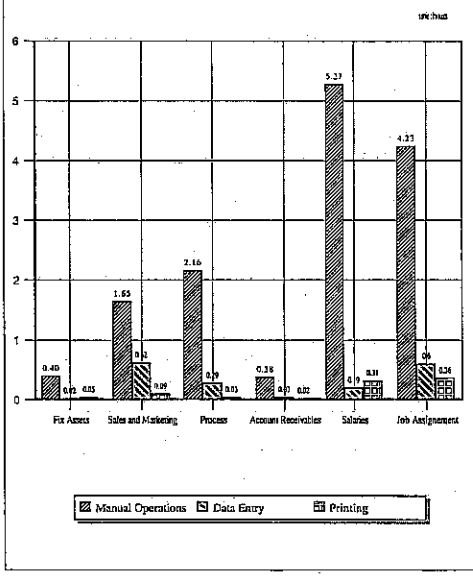


Chart 4:Comparison of Actual hours used between manual and detainee training funds accounting management



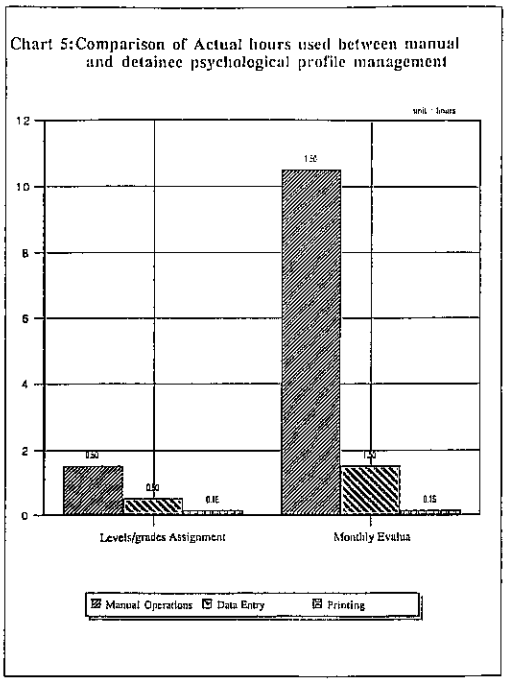


Figure 1: DEMS System Architecture at the Taichung Detention Center

Figure 2 :
DEMS Network Architecture